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DERWENT; IBM_TDB		09/09/2003, EAST Version: 1.04.0000

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(12) United States Patent Chakrabarti et al.

(10) Patent No.:

US 6,356,899 B1

(45) Date of Patent:

*Mar. 12, 2002

METHOD FOR INTERACTIVELY CREATING AN INFORMATION DATABASE INCLUDING PREFERRED INFORMATION ELEMENTS, SUCH AS PREFERRED-AUTHORITY, WORLD WIDE WEB PAGES

4,996,642 A 2/1991 Hey 705/27

(List continued on next page.)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 09/261,926

(22) Filed: Mar. 3, 1999

Related U.S. Application Data

(63)Continuation-in-part of application No. 09/143,733, filed on Aug. 29, 1998.

(51)	Int. Ci.'	G06F 17/30
(52)	U.S. Cl	707/5 ; 707/3; 707/4; 707/104
(58)	Field of Search	707/1, 3, 4, 5,
		707/104; 709/218, 219

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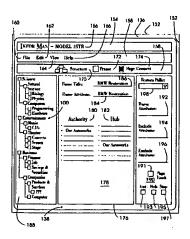
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Primary Examiner—Diane D. Mizrahi (74) Attorney, Agent, or Firm-John L. Rogitz

ABSTRACT

A method for identifying, filtering, ranking and cataloging information elements; as for example, World Wide Web pages, of the Internet in whole, part, or in combination. The method is preferably implemented in computer software and features steps for enabling a user to interactively create an information database including preferred information elements such as preferred World Wide Web pages in whole, part, or in combination. The method includes steps for enabling a user to interactively create a frame-based, hierarchical organizational structure for the information elements, and steps for identifying and automatically filtering and ranking by relevance, information elements, such as World Wide Web pages for populating the structure, to form; for example, a searchable, World Wide Web page database. Additionally, the method features steps for enabling a user to interactively define a frame-based, hierarchical information structure for cataloging information, identifying a preliminary population of information elements for a particular hierarchical category arranged as a frame, based upon the respective frame attributes, and thereafter, expanding the information population to include related information, and subsequently, automatically filtering and ranking the information based upon relevance, and then populating the hierarchical structure with the a definable portion of the filtered, ranked information elements.

50 Claims, 19 Drawing Sheets



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United States Patent [19]

Kleinberg

[11] Patent Number:

6,112,202

[45] Date of Patent:

Aug. 29, 2000

[54] METHOD AND SYSTEM FOR IDENTIFYING AUTHORITATIVE INFORMATION RESOURCES IN AN ENVIRONMENT WITH CONTENT-BASED LINKS BETWEEN INFORMATION RESOURCES

[75] Inventor: Jon Michael Kleinberg, Los Gatos,

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[73] Assignee: International Business Machines

Corporation, Armonk, N.Y.

[21] Appl. No.: 08/813,749

[22] Filed: Mar. 7, 1997

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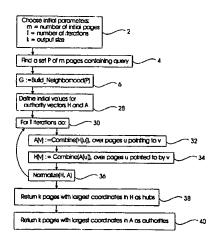
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Primary Examiner—Thomas G. Black Assistant Examiner—John Loomis Attorney, Agent, or Firm—Khanh Q. Tran

[57] ABSTRACT

A system and method are provided for searching for desired items from a network of information resources. In particular, the system and method have advantageous applicability to searching for World Wide Web pages having desired content. An initial set of pages are selected, preferably by running a conventional keyword-based query, and then further selecting pages pointing to, or pointed to from, the pages found by the keyword-based query. Alternatively, the invention may be applied to a single page, where the initial set includes pages pointed to by the single page and pages which point to the single page. Then, iteratively, authoritativeness values are computed for the pages of the initial set, based on the number of links to and from the pages. One or more communities, or "neighborhoods", of related pages are defined based on the authoritativeness values thus produced. Such communities of pages are likely to be of particular interest and value to the user who is interested in the keyword-based query or the single page.

57 Claims, 5 Drawing Sheets



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